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FIG. 1

ATGATGGTGGATCCCAATGGCAATGAATCCAGTGCTACATACTTCATCCTAATAGGCCTC
CCTGGTTTAGAAGAGGCTCAGTTCTGGTTGGCCTTCCCATTGTGCTCCCTCTACCTTATT
GCTGTGCTAGGTAAGTGAACAATCATCTACATTGTGCGGACTGAGCACAGCCTGCATGAG
CCCATGTATATATTTCTTTGCATGCTTTGAGGATTGACATCCTCATCTCCACCTCATCC
ATGCCCCAAATGCTGGCCATCTTCTGGTTCAATTCCACTACCATCCAGTTTGATGCTTGT
CTGCTACAGATGTTTGCCATCCACTCCTTATCTGGCATGGAATCCACAGTGCTGCTGGCC
ATGGCTTTTGACCGCTATGTGGCCATCTGTCACCCACTGCGCCATGCCACAGTACTTACG
TTGCCTCGTGTACCAAAATTGGTGTGGCTGCTGTGGTGCGGGGGGCTGCACTGATGGCA
CCCCTTCCTGTCTTCATCAAGCAGCTGCCCTTCTGCCGCTCCAATATCCTTTCCCATTC
TACTGCCTACACCAAGATGTGATGAAGCTGGCCTGTGATGATATCCGGGTCAATGTGCTC
TATGGCCTTATCGTCATCATCTCCGCCATTGGCCTGGACTCACTTCTCATCTCCTTCTCA
TATCTGCTTATTCTTAAGACTGTGTTGGGCTTGACACGTGAAGCCCAGGCCAAGGCATTT
GGCACTTGCGTCTCTCATGTGTGCTGTGTTTCAATTCTATGTACCTTTTATTGGATTG
TCCATGGTGCATCGCTTTAGCAAGCGGCGTGACTCTCCGCTGCCCGTCATCTTGGCCAAT
ATCTATCTGCTGGTTCCTCCTGTGCTCAACCCAATTGTCTATGGAGTGAAGACAAAGGAG
ATTCGACAGCGCATCCTTCGACTTTTCCATGTGGCCACACACGCTTCAGAGCCCTAG

FIG. 2

MMVDPNGNESSATYFILIGLPGLEEAQFWLAFPLCSLYLIAVLGNLTIIYIVRTEHSLHE
PMYIFLCMLSGIDILISTSSMPKMLAIFWFNSTTIQFDACLLQMFHLSLSGMESTVLLA
MAFDYVAICHPLRHATVLTLPVTKIGVAAVVRGAALMAPLPVFIKQLPFCRSNILSHS
YCLHQDVMKLACDDIRVNVVYGLIVIIISAIGLDSLLISFSYLLILKTVLGLTREAAKAF
GTCVSHVCAVFIFYVPFGLSMVHRFSKRSDPLPVILANIYLLVPPVLNPIVYGVKTK
IRQRILRLFHVATHASEP

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FIG. 3

CCACGCGTCCGCTCTGCCCTGAATCCAGGATAGACCAGGACAACAAGATGAGTGGCTAAC
TGTAGGATGGTGTCCATCTGTGCTCTAGGGGAGGAGTAGCATCAAAGGAGAAGCAAGAAC
TGAGAACTGTTTGGGGCACTGAAGAAGTAGGACTAAGGAAGAGTTAGGGGGTTAGTACAA
ATCTGAGGCCTGGTTTTCTGGAAAGAGACCAGAGACTGACCTTATTGCATGTCATACAAC
ATGCTTGCTTAGAGACCCCTAATTTATTTTCTTCTCTTACTCTTTCTGAGGAAGCATGAG
CCACACCCTCAGTTAGTTTTGTATAATCTTAGGCTTGATGAGAATATAATCTTAGTCTTG
AAGGCTTTAAAGGGGAAGAAATAGCTGTCTGTGTTAGTGGTGTGTCAGTCAGCAGGAGAA
CCTGCTAGGGGTGGAAGGAGGAGGGTAGGAGTATAGCCTAGACCATGAGTAGATACCCCG
CTCCACCTTGAAAGTCTCCTACTGGACCTCTTATGATGGAGTTAATACCTCCTGTTTCCT
CTATTCCAGATTGTTTTAGTTTTCCAGAAGGCAAACTGACATCTCCAGGAGTCCAAGT
AGGAGATTAGGGCCTCCCGTCCCTATCTACTCAGTGCTAGCCTTGGCTAAGAGAGAGGAA
ATTCTGCTTAGAGGGGAAAATCTGCAGGACTTCGTTACCACTTTCACTTTGGCAGAGGA
AGGAGGTCAGGGATGGAAGGGGAAGTGAGTCTAGAAATTAAAACATAGAATTCTGTCTAC
AGGTGGTGGAGAGCCTTTCTGAAAGTGCTTCTGGGTTGAGGCTGTCACCTAGATTTTATA
TTAGAGTTTAAAGTGTTCCAAAAAATTAAGAAGCAGGAAGTAGAAAAGAGAACAAATTTAG
AAGCAGACGAAAGGAACAGTAATAGGAAGATCTAGCAAGGATGTGGTGGGGCAGTTTCAG
TGTGAGATGCCATGGACAGGAAAATGGCAGCATATGTGTGTGTGTGTGTGTGTGTGTGTG
TCCATGAGACAGAGAGACATAAATAACTAAATAAAAAGGCATATCACAAAGAGGGGCTCC
TGCTTCAGCTTGAGTCCTGGATGCAAAGACATGTGGACTGGGATCCTAGCAACCTATCTG
CAGCCAAGGACATGACGTTAGACGCCCCAAGAAAAGGAAAATTGGTCAAACATAGGAAGA
GCACTCAAGTGCCAGCTACAGTGAATGACAAATACCCACCACAAGCACAAGCTCTACATT
CACAAAACTTGAAAACACAAGTTCATAGACTGGGCAACCCTGAGTAGTGGAGAGATCA
CCAGCCATGTTTCAGGTTGTACCCTCTACCTGCCTGGTGCTGGTCACAGTTCAGCTTCTT
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FIG. 4

GTGTCAGTGATCAAACCTTCTTTTCCATTTCAGAGTCCTCTGATTTCAGATTTTAAATGTTAAC
 ATTTTGGGAAGACAGTATTTCAGAAAAAAATTTTCCTTAATAAAAAATACAACCTCAGATCCTT
 CAAATATGAACTGGTTGGGGAATCTCCATTTTTTCAATATTATTTTCTTCTTTGTTTTT
 TTGCTACATATAATTATTAATACCCTGACTAGGTTGTGGTTGGAGGGTTATTACTTTTTCA
 TTTTACCATGCAGTCCAAATCTAACTGCTTCTACTGATGGTTTACAGCATTCTGAGATA
 AGAATGGTACATCTAGAGAACATTTGCCAAAGGCCTAAGCACGGCAAAGGAAAAATAACA
 CAGAATATAATAAAATGAGATAATCTAGCTTAAACTATAACTTCCTCTTCAGAACTCCC
 AACCACATTGGATCTCAGAAAAATACTGTCTTCAAATGACTTCTACAGAGAAGAAATAA
 TTTTTCCTCTGGACACTAGCACTTAAGGGGAAGATTGGAAGTAAAGCCTTGAAAAGAGTA
 CATTTACCTACGTTAATGAAAGTTGACACACTGTTCTGAGAGTTTTTCACAGCATATGGAC
 CCTGTTTTTCTATTTAATTTTCTTATCAACCCTTTAATTAGGCAAAGATATTATTAGTA
 CCCTCATTGTAGCCATGGGAAAATTGATGTTTCAGTGGGGATCAGTGAATTAAATGGGGTC
 ATACAAGTATAAAAAATTAATAAAAAAAGACTTCATGCCCAATCTCATATGATGTGGAAGA
 ACTGTTAGAGAGACCAACAGGGTAGTGGGTAGAGATTTCAGAGTCTTACATTTTCTAG
 AGGAGGTATTTAATTTCTTCTCACTCTCTCCAGTGTGTTATTTAGGAATTTCTGGCAAC
 AGAACTCATGGCTTTAATCCCACTAGCTATTGCTTATTGTCTGGTCCAATTGCCAATTA
 CCTGTGTCTTGGAGAAGTGATTTCTAGGTTCAACATTATGGAAGATTCTTATTTCAGAAA
 GTCTGCATAGGGCTTATAGCAAGTTATTTATTTTAAAGTTCCATAGGTGATTCTGATA
 GGCAGTGAGGTTAGGGAGCCACCAGTTATGATGGGAAGTATGGAATGGCAGGTCTTGAAG
 ATAACATTGGCCTTTTGAGTGTGACTCGTAGCTGGAAAGTGAGGGAATCTTCAGGACCAT
 GCTTTATTTGGGGCTTTGTGCAGTATGGAACAGGGACTTTGAGACCAGGAAAGCAATCTG
 ACTTAGGCATGGGAATCAGGCATTTTTGCTTCTGAGGGGCTATTACCAAGGGTTAATAGG
 TTTTCATCTTCAACAGGATATGACAACAGTGTTAACCAAGAACTCAAATTACAAATACTA
 AAACATGTGATCATATATGTGGTAAGTTTCATTTTCTTTTTCAATCCTCAGGTTCCCTGA
 TATGGATTCCCTATAACATGCTTTCATCCCCTTTTGTAATGGATATCATATTTGGAAATGC
 CTATTTAATACTTGTATTTGCTGCTGGACTGTAAGCCCATGAGGGCACTGTTTATTATTG
 AATGTCATCTCTGTTTCATCATTGACTGCTCTTTGCTCATCATTGAATCCCCCAGCAAAGT
 GCCTAGAACATAATAGTGCTTATGCTTGACACCGGTTATTTTTTCATCAAACCTGATTCTT
 TCTGTCCTGAACACATAGCCAGGCAATTTTCCAGCCTTCTTTGAGTTGGGTATTATTTAAA
 TTCTGGCCATTACTTCCAATGTGAGTGGAAGTGACATGTGCAATTTCTATACCTGGCTCA
 TAAACCCCTCCCATGTGCAGCCTTTTCATGTTGACATTAAATGTGACTTGGAAGCTATGT
 GTTACACAGAGTAAATCACCAGAAGCCTGGATTTCTGAAAAAACTGTGCAGAGCCAAACC
 TCTGTCAATTTGCAACTCCCACTTGTATTTGTACGAGGCAGTTGGATAAGTGAAAAATAAA
 GTACTATTGTGTCAAGTCAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

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FIG. 5

MMVDPNGNES SATYFILIGL PGLEEAQFWL AFPLCSLYLI AVLGNLTIIY
IVRTEHSLHE PMYIFLCMLS GIDILISTSS MPKMLAIFWF NSTTIQFDAC
LLQMFAIHSL SGMESTVLLA MAFDRYVAIC HPLRHATVLT LPRVTKIGVA
AVVRGAALMA PLPVFIKQLP FCRSNILSHS YCLHQDVMKL ACDDIRVNVV
YGLIVIISAI GLDSLISFS YLLILKTVLG LTREAQAKAF GTCVSHVCAV
FIFYVPFIGL SMVHRFSKRR DSPLPVILAN IYLLVPPVLN PIVYGVKTKE
IRQRILRLFH VATHASEP

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FIG. 6A

Q9WVN4 ~~~~~MWP.NSSDA.P..FLLTCFPGLEMIHHWISIPFFVIYFSIIVGNGTLLFIWSD
 Q9WVN5 ~~~~~MWS.NISAA.P..FLLTCFPGLEAAHHWISIPFFAIYISVLLGNGTLLYLIKDD
 Q9Y5P1 ~~~~~MWP.NITAA.P..FLLTCFPGLEAAHHWISIPFFAVYVCILLGNGMLLYLIKHD
 Q9YH55 ~~~~~MYPRNSSQAQP..FLLACLPQMAQFHHWVFLPFGLMYLVAVLGNGTLLVVRVH
 HGPRBMY4 ~~~~~MMVDPNGNESSATYFLLIGLPGLEEAQFWLAFPLCSLYLIAVLGNLTIIYIVRTE
 O88628 ~~~~~MSSCNFTHAT.FMLIGIPGLEEAHFWFGFPLLSMYAVALFCNCIIVVFIVRTE
 Q9WU89 MNSKASMLGTNFTIIHPTVEILLGIPGLEQYHTWLSIPFCLMYIAAVLGNGALILVVLSE
 Q9WVD9 ~MKVASSFHNDINPDVWYVLLGIPGLEDLHSWIAIPICSMYIVAVIGNVLLIFLIVTE
 Q9WU93 ~~~~~MSPGNSSWIHPSSFLLGIPGLEELQFWLGLPFGTVYLIAVLGNVILFVVIYLE
 Q9WVD7 ~~~~~MIKFNGSVFMPSVLTLVGIPLGESVQCWIGIPFCVMIIAMIGNSLILVIIKSE

Q9WVN4 HSLHEPMYYFLAVLASMDLGMTLTMTPTVLGVLVLNQREIVHGACFTIQSYFIHSLAIVES
 Q9WVN5 HNLHEPMYYFLAMLAGTDLTVLLTMTPTVMMAVLWVNHREIRHGACFLQAYIIHSLSIVES
 Q9Y5P1 HSLHEPMYYFLTMLAGTDLMTVLLTMTPTVMGILWVNHREISSVGCFLQAYFIHSLSVVES
 Q9YH55 RQLHQPMYYFLMLLATDLDLGLTLSTLPTVLRVFWLGAMEISFPACLIQMFCHVFSFMES
 HGPRBMY4 HSLHEPMYIFLCMLSGIDLTLSTSSMPKMLAIFWFNSTTIQFDACLLQMFCHVFSFMES
 O88628 RSLHAPMYLFLCMLAIDLALSTSTMPKILALFWFDSREITFDACLAQMFCHVFSFMES
 Q9WU89 RTLHEPMYVFLSMLAGTDLTLSTTTPKTLAIFWFHAGEIPFDACIAQMFCHVFAVES
 Q9WVD9 HSLHEPMYFELSMALADLLSTATAPKMLAIFWFHSGISFGSCVSQMFCHVFAVES
 Q9WU93 HSLHQPMYVLLLATLAVTDLGLSTATVPRALGIFWFGFKIAFRDCVAQMFCHVFAVES
 Q9WVD7 KSLHIPMYIFLAILAVTDLALSTCILPKMLGIFWFHMPQISFDACLLQMFCHVFAVES

Q9WVN4 GVLLAMSYDRFVAICTPLHYNSILTNSRVKMALGALLRGFVSIVPPIMPLFW.FPYCHS
 Q9WVN5 GVLLAMSYDRFVAICTPLHYNSILTNSRVIAIGLVVLRGFLSLVPPILPLFW.FSYCRS
 Q9Y5P1 GSLLAMAYDRFVAICTPLRYASIFTNTRVIALGVGVFLRGFVSILPVILRLFS.FSYCKS
 Q9YH55 SVLLAMAFDRYVAICCPRLRYSSILTGARVAQIGLGIICRCTLSELLPLICLLTW.LPFCRS
 HGPRBMY4 TVLLAMAFDRYVAICHPRLRHATVLTLPRTKIGVAAVVRGAALMAPLPVFIK.QLPFCRS
 O88628 TILLAMAFDRYVAICHPRLHAAVLNNTVTVOIGMVALVRGSLFFFPLPLLIK.RLACHS
 Q9WU89 GILLAMAFDRYVAICTPLRYSAVLTPTMAIGKMTLAIWGRSIGTIFPIIFLLK.RLSYCRS
 Q9WVD9 AILLAMAFDRYVAICYPLRYTTILTSSVIGKIGTAAVVRSFILCFPFIFLVY.RLLYCGK
 Q9WU93 FMLVAMAFDRYVAICNPLRYNTILTNRITCIHVGVLGFKNFILVFPLIFLIL.RLSFCHG
 Q9WVD7 GILLAMALDRYVAICNPLRHATIFSPQLTTCLGAGALLRSLITTEPLILILKFCILKVFRT

Q9WVN4 HVLSHAFCLHODVMKLACADITFNLIYPVVLVALTFFLDALIIIFSYVLILKKVMGTASG
 Q9WVN5 HVLSHAFCLHODVMKLACADITFNRIYPVVLVALTFFLDALIIIVFSYVLILKTVMGITAG
 Q9Y5P1 HVIITRAFCLHODVMKLACADITFNRLYPVILISLTIFFLDSLIILFSYVILNLTIVIGITAG
 Q9YH55 HVLSHPYCLHODVIRLACTDATLNSLYGLILV.LVAILDVFLIALSYIMIFERTVLGITSK
 HGPRBMY4 NILSHSYCLHODVMKLACDDIRVNVVYGLIVITISAIGLDSLLISFSYVLILKTVLGL.TR
 O88628 NVLSHSYCVHODVMKLAYTDLTPNVVYGLTALLVMGVDMVFISLSYFLITRAVLQOLPSK
 Q9WU89 NVIPHSYCEHIGVARLACADITVNIWYGFSPMASVLVDVALIGISYTLILQAVFRIPSQ
 Q9WVD9 HIIPHSYCEHMGITARLACDNITVNIYGLTMALLSTGLDILLIIISYTMILRTVFOIPSW
 Q9WU93 NIIPHTYCEHMGITARLACVSIKVNVLFG.LILISMILLDVVLSALSAYAKILHAVFKLPSW
 Q9WVD7 TIISHSYCEHMAIVKLAAQDIRINKICGLLVAFAILGFDIVFITFSYVRIFFITVFOIPQK

FIG. 6B

Q9WVN4 EERKKSLNTCVSHISCVLVIFYITVIGLTFTHRF.GKNAPHVVHITMSYVYFLFPPFPMNPI
Q9WVN5 EERAKALNTCVSHISCVLVIFYITVIGLTFTHRF.GKNAPHVVHITMSYVYFLFPPFPMNPI
Q9Y5P1 EERAKALNTCISHISCVLIFYVTVMGLTFITYRF.GKNVPEVVHITMSYIYFLFPPPLMNPV
Q9YH55 EEQTKALNTCVSHFCAVLIFYIPLAGLSIIHRY.GRNAPPISHAVMANVYLFVPPILNPV
HGPRBMY4 EAQAKAFGTCVSHVCVAVIFYVPEFGLSMVHRF.SKRRDSPLPVILANIYLLVPPVLNPI
O88628 SERAKAFGTCVSHICVVLAFYVPLIGLSVVHRF.GNSLDPITVHVLMGDVYLLLPPIINPI
Q9WU89 DARHKALNTCGSHICVILLFFIPSFFTFLTHRF.GKNIPHHVHILLANLYVLVPPMLNPI
Q9WVD9 AARYKALNTCGSHICVILLFFYTPAFFSFEAHREFGGKTVPRHIHILVANLYVVVPPMLNPI
Q9WU93 EARLKALNTCGSHVCVILAFFTPAFFSFLTHRF.GHNIIPRYIHILLANLYVILPXALNPI
Q9WVD7 EARFKAFNTCIAHICVFLQFYLLAFFSFEHTRF.GAHTIPPYVHILLSDLYLLVPPFLNPI

Q9WVN4 IYSIKTKQIQRSILRLLSKHSRT-----
Q9WVN5 IYSIKTKQIQRSVLHLLSV-----
Q9Y5P1 IYSIKTKQIQYGIIRLLSKHRFSR-----
Q9YH55 IYSMKSKAICKGLIRLLCQRAAWPGHAQNC~
HGPRBMY4 VYGVKTKEIRQRILRLFHVATHAS.EP----
O88628 IYGAKTKQIRTRVLAMFKISCDKDIEAGGNT
Q9WU89 IYGAKTKQIRDS.MTRMLSVVWKS-----
Q9WVD9 IYGVKTQIQDR.VVFLFSSVSTCQHDSRC~
Q9WU93 IYGVRTQIQDRAVTILCNEVGQLADD----
Q9WVD7 VYGIKTKQIRDQVLKMFFSKKPL-----

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FIG. 7

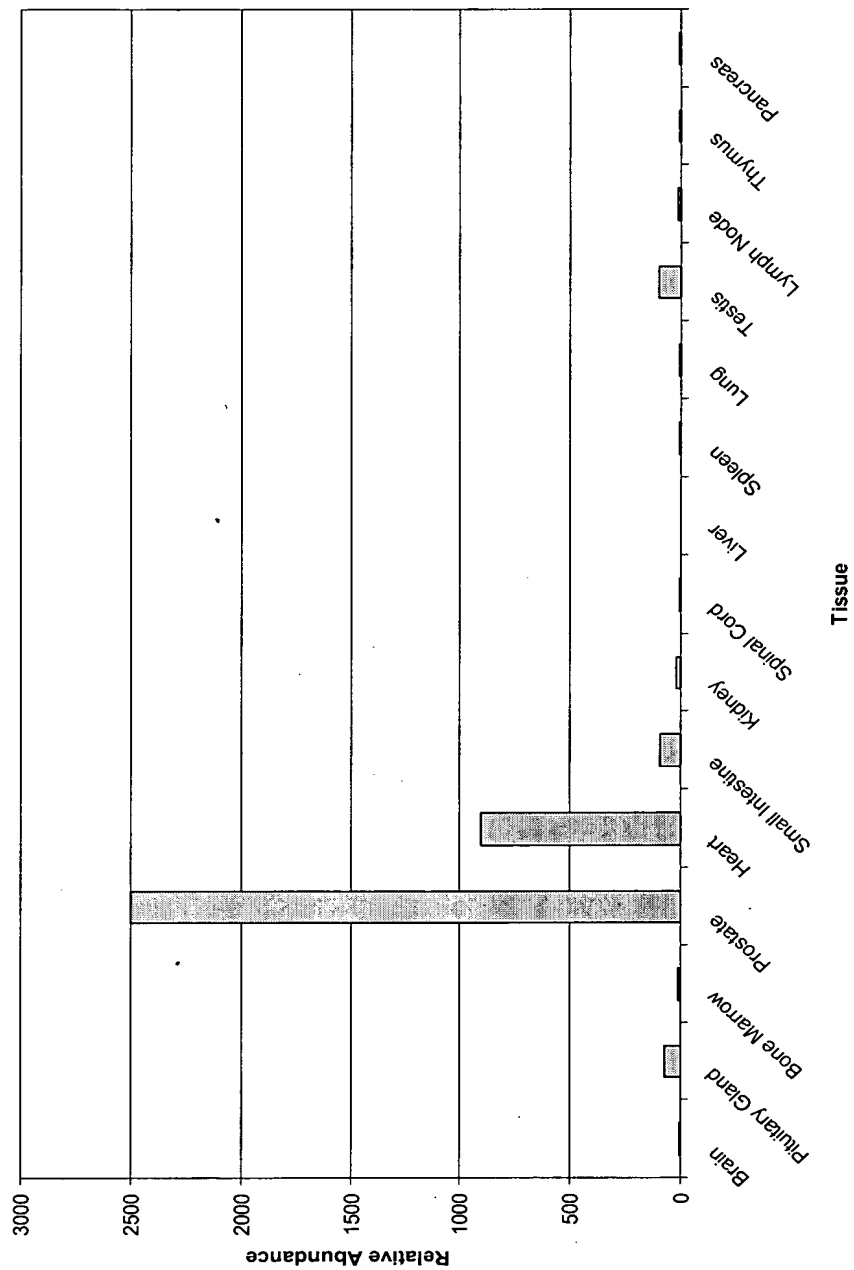


FIG. 8

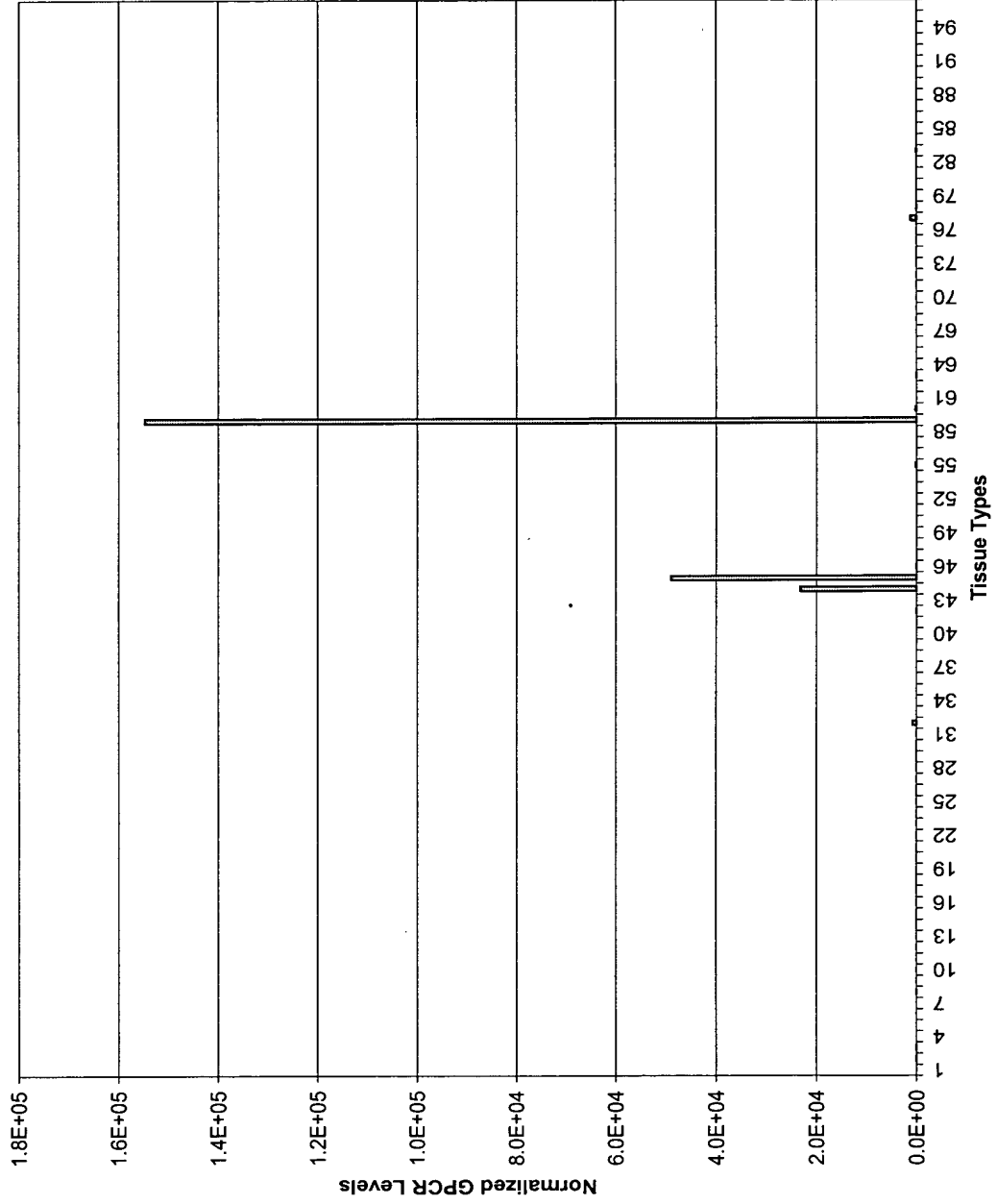


FIG. 9

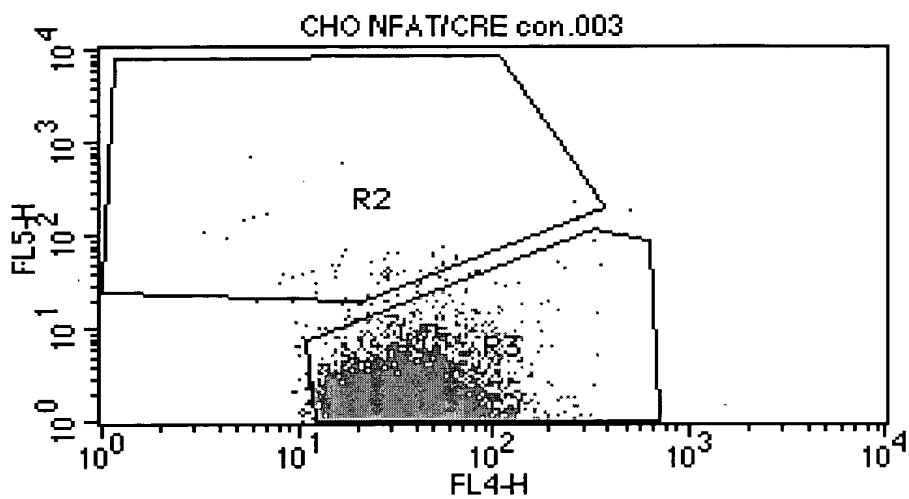


FIG. 10

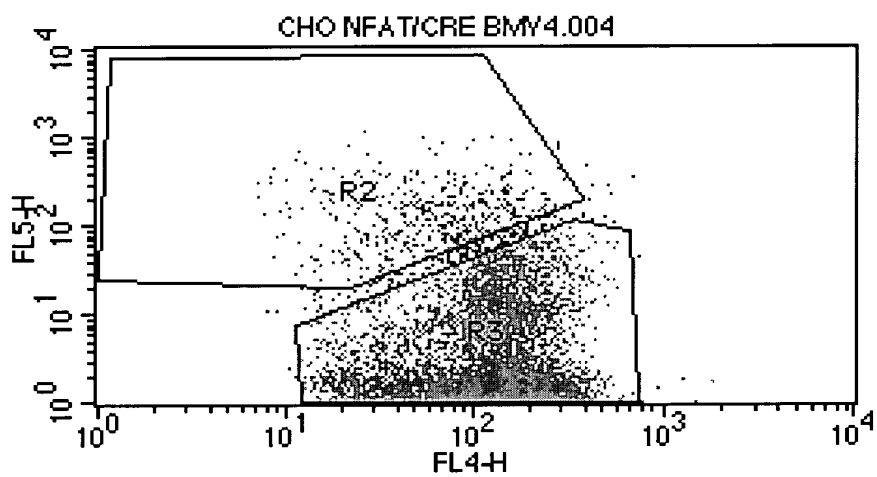


FIG. 11

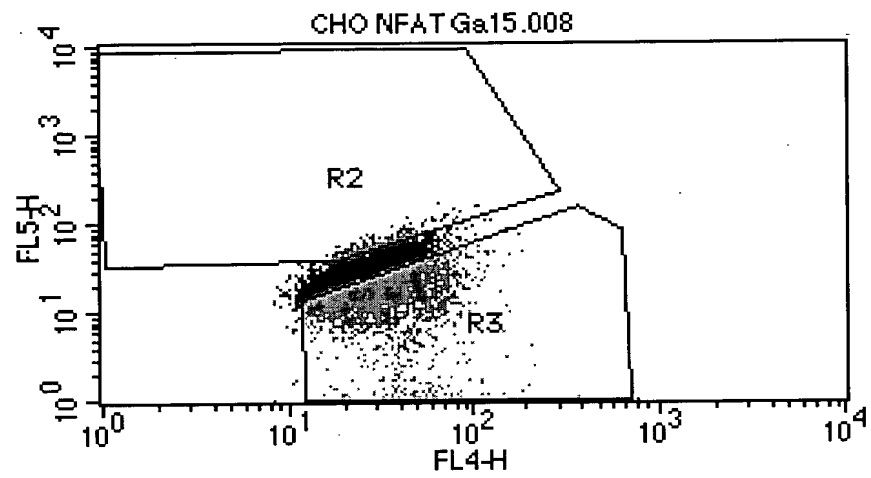
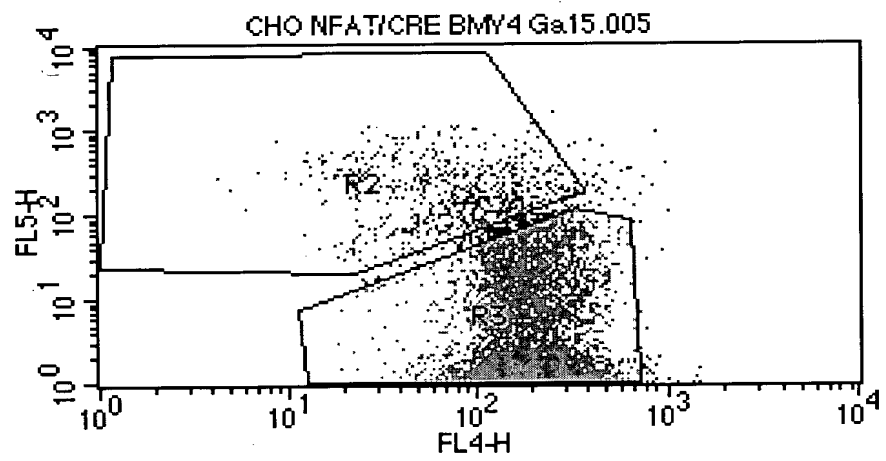


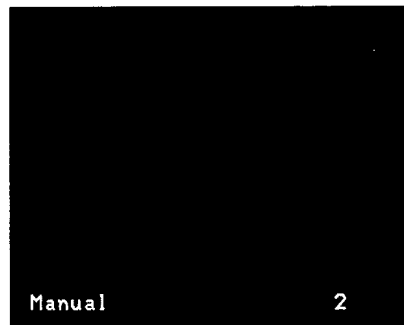
FIG. 12



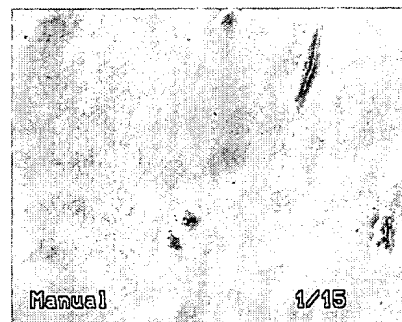
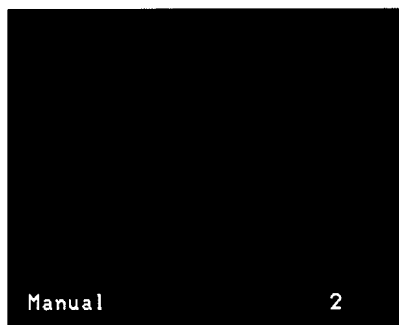
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FIG. 13.

a. CHO-NFAT G alpha 15 (Fluorescent vs. Bright Field)



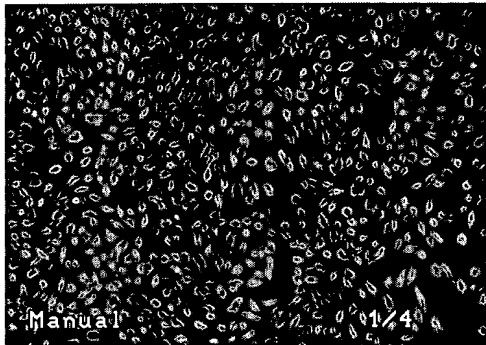
b. CHO-NFAT Galpha 15 HGPRBMY4 (Fluorescent vs. Bright Field)



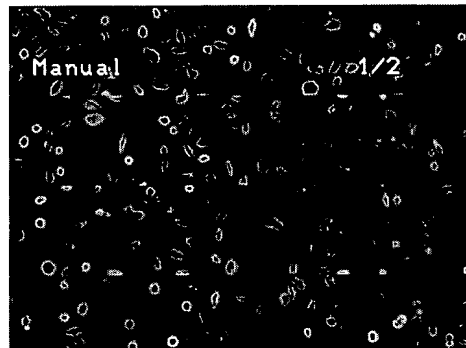
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FIG. 14

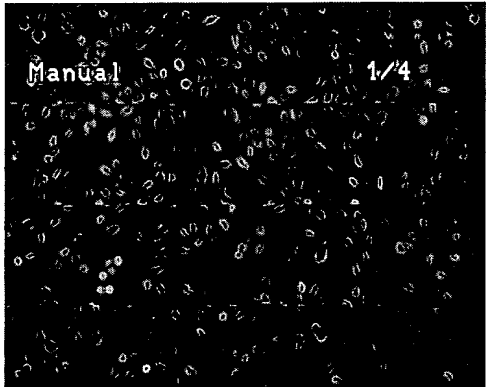
a. CHO-NFAT/ CRE



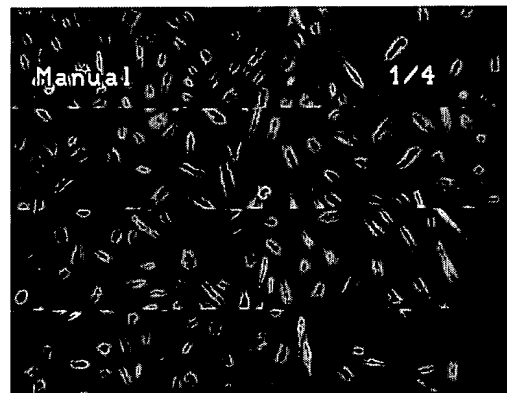
b. CHO-NFAT/CRE + F/T/P



c. CHO-NFAT/CRE oGPCR-Intermediate



d. CHO-NFAT/CRE oGPCR High



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